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Transmitted herewith for filing is the Patent Application of:

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For: SYSTEM, METHOD, AND PROGRAM PRODUCT FOR SAVING A SUBMITTED FORM OF A WEB PAGE

Enclosed are:

- ☒ Patent Specification and Declaration
- ☒ 4 sheets of drawing(s).
- ☒ An assignment of the invention to International Business Machines Corporation (includes Recordation Form Cover Sheet).
- ☐ A certified copy of a application.
- ☐ Information Disclosure Statement, PTO 1449 and copies of references.

The filing fee has been calculated as shown below:

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**SYSTEM, METHOD, AND PROGRAM PRODUCT FOR SAVING A SUBMITTED  
FORM OF A WEB PAGE**

**BACKGROUND OF THE INVENTION**

**1. Technical Field:**

The present invention relates in general to a web browser application run on a client system that communicates with a server system to retrieve web pages, and, in particular, to the submission of a form of a web page, which is retrieved by the client system from the server system, through the web browser application. Still more particularly, the present invention relates to a system, method, and program product for saving a form for a web page, which is submitted by the client system through the web browser application to the server system.

**2. Description of the Related Art:**

The use of the Internet or World Wide Web (WWW) for personal and business purposes continues to grow. A user typically establishes communication from his/her client system to an Internet Service Provider (ISP), and the client system then communicates with server systems through the Internet connection to retrieve web pages requested by the user.

Many web pages provided by server systems request users to fill out forms. For example, a typical form may request data from the user, such as name, address, phone number, e-mail address, and/or method of payment. These

forms are especially useful in electronic business transactions in which a business hosting a web page is able to obtain important data, such as shipping information and method of payment, from the customers.

5 These forms are also useful for organizations hosting web sites to obtain registration information or gather statistical or profile data from various users.

10 A "web page" is a document on the WWW and consists of an HTML file having associated files for graphics and scripts in a particular directory on a particular machine (i.e., server system), which is identifiable by a Uniform Resource Locator (URL) location. Microsoft Press Computer Dictionary, Third Edition, Microsoft Press, A Division of Microsoft Corporation, Redmond, Washington, Copyright 1997 at page 506. A web page is retrieved from the server system and typically displayed to the user on a display monitor at a client system. A "form" is a structured document or presentation element (i.e., a window, box, etc.) displayed on the display monitor by a data processing system in which the document or presentation element has predefined areas or fields in which a user enters or changes data. Id. at page 204. A form may be at least part of a web page. "Data" that is provided from a user is information entered or changed in the predefined areas or fields of the form by the user of the web page. "Field identifiers" are indicators in the code for identifying the fields of the form and are used to associate the data provided from the user to the respective fields of the form. For example, an address identifier associates address data provided from the user to the address field of the form.

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However, the entry of these forms may be very time consuming to the users. Some web sites have safeguards that prevent forms from being submitted more than once. This safeguard sometimes leads to the user having to back out from the form entry field and re-start the entry of data into the form if the submission of the form from the client system to the server system was not successful. Various transmission problems may cause the submission of the form to be unsuccessful. Problems with the web browser application itself or the web browser application closing may also be the source of the unsuccessful submission. If any of these problems persist, then the user may have to re-enter data in the form many times before the server system accepts the form. Re-entry of information in the form wastes significant, valuable time of the user.

The present invention recognizes the need to at least minimize the amount of time consumed by the user having to re-enter and re-submit a form for a web site multiple times.

### SUMMARY OF THE INVENTION

A system, method, and program product of the invention enables saving a submitted form of a web page.

5 The browser application according to the present invention is executed in a client system and receives from a user data for a form in a web page. If the user activates a submission of the form with the data to a server system hosting the web page, an address of the web page, the data

10 provided from the user for the form, and at least one field identifier for associating the data to at least one respective field of the form, are saved into a volatile memory system of the client system. The address, the data, and the at least one field identifier are still

15 stored in the volatile memory system after the browser application is closed. When the user opens the browser application that had been closed and again requests retrieval of the web page, the browser application retrieves from the server system the web page that is at

20 the address stored in the volatile memory system. The browser application restores the form of the web page with the data stored in the volatile memory system. The browser application calls a clipboard operation of an operating system on which the client system operates to

25 save the address of the web page, the data for the form, and the one or more field identifiers, into the volatile memory system. If the data for the form is successfully submitted to the server system and the browser application receives another request for a next web page from the

30 user, the browser application erases, if required, the data from the volatile memory system.

The above as well as additional objects, features,

and advantages of the present invention will become apparent in the following detailed written description.

### BRIEF DESCRIPTION OF THE DRAWINGS

The novel features believed characteristic of the invention are set forth in the appended claims. The invention itself however, as well as a preferred mode of use, further objects and advantages thereof, will best be understood by reference to the following detailed description of an illustrative embodiment when read in conjunction with the accompanying drawings, wherein:

**Figure 1** is an exemplary block diagram illustrating a networked environment in which the present invention is implemented;

**Figure 2** is a block diagram of an exemplary embodiment of a client system or a server system that may be used for implementing the present invention;

**Figure 3** is a computer display showing a web page having a form that is filled with data provided by a user and that is saved into a volatile memory system in the client system before being submitted to the server system; and

**Figure 4** is a flow chart of an exemplary method or program product for the browser application executed by the client system in accordance with the present invention.

**DETAILED DESCRIPTION OF ILLUSTRATIVE EMBODIMENT**

5 The present invention saves a web page form filled with data provided by a user into a volatile memory system (via an operating system clipboard operation) of a client system before submission to a server system. The present invention reduces the amount of time wasted by a user having to re-enter and re-submit a form for a web site multiple times.

10 With reference now to **Figure 1**, an exemplary block diagram **100** illustrating a networked environment in which the present invention is implemented is shown. The networked environment includes a client system **102** coupled in communication with a server system **110** through Internet or World Wide Web (WWW) **108** to permit access to web sites specified by a user of client system **102**. Pages of various web sites hosted by server system **110** are retrieved and displayed on display monitor **22** by client system **102** through execution of browser application **104** on top of client operating system **106**. Browser application **104** and operating system **106** are shown in **Figure 1** to be stored in hard disk drive **29** of client system **102**. The web pages retrieved by client system **102** may include forms.

25 As stated earlier, a form may request data from the user, such as name, address, phone number, e-mail address, and/or method of payment. In accordance with the present invention, when the user fills out data for a form and submits the form with the data to server system **110** hosting the web page, browser application **104** is

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programmed to automatically save at least an address of the web page, the data for the form provided by the user, and the field identifiers for associating the provided data to the appropriate fields of the form into volatile memory system (i.e., Dynamic Random Access Memory (DRAM)) **14** of client system **102**.

Referring to **Figure 2**, a block diagram of an exemplary computer system **10**, which may be the hardware system for client system **102** or server system **110** of Figure 1, is shown. A central processing unit (CPU) **12**, read only memory (ROM) **13**, and a Dynamic Random Access Memory (DRAM) **14** are connected to a system bus **11** of exemplary computer system **10**. CPU **12**, ROM **13**, and DRAM **14** are also coupled to a PCI local bus **20** of computer system **10** through a PCI host bridge **15**. PCI host bridge **15** provides a low latency path through which processor **12** may directly access PCI devices mapped anywhere within bus memory and/or I/O address spaces. PCI host bridge **15** also provides a high bandwidth path allowing PCI devices to directly access DRAM **14**. In addition, an audio adapter **23** may be attached to PCI local bus **20** for controlling audio output through speaker **24**. A graphics adapter **21** may be attached to PCI local bus **20** for controlling visual output through display **22**. Also attached to PCI local bus **20** is a local-area-network (LAN) interface adapter **16**, which connects computer system **10** to a local-area network (LAN) **17**. A PCI-to-ISA bus bridge, such as an expansion bus bridge **45**, may be utilized for coupling an ISA bus **25** to PCI local bus **20**. Although the illustrated exemplary embodiment describes a PCI local bus **20** and an ISA bus **25**, the present invention is not limited to these particular

bus architectures. Rather, the present invention can be utilized in any computer system having other different bus architectures. As shown, a keyboard **26**, a microphone **27**, a mouse **28**, and a hard disk drive **29** may be attached to  
5 ISA bus **25** to perform certain basic I/O functions.

With reference now to **Figure 3**, a screen **300** of display **22** (in **Figures 1** and **2**) showing an exemplary web page **304** including a form **306** is shown. According to the  
10 present invention, information relating to form **306**, such as web page address **318**, data inputted into fields **308** and **310** by the user, and field identifiers **324** and **328** for identifying fields **308** and **310** and associating the data provided by the user to respective fields **308** and **310**, is  
15 saved into a volatile memory system, such as DRAM **14** shown in **Figures 1** and **2** of client system **102** before submission of form **306** to server system **110**. Exemplary web page **304** is from a web site hosted by server system **110** in which the web site has a search engine for finding and  
20 displaying maps and driving directions. Web page **304** provides an interface to the search engine that allows the user to request the map or directions for an address. Form **306** contains street address or intersection ("address") field **308** and city, state, and zip code  
25 ("CSZ") field **310** and a form submission icon **312**. The user fills in address field **308**, and city, state, and zip code ("CSZ") field **310**, with appropriate data.

Web page **304** is defined by any suitable code, such as  
30 hypertext markup language ("HTML" or "XML"), and the code is interpreted by browser application **104** (as shown in **Figure 1**) when requested by the user to display web page

**304** on screen **300** of display **22** at client system **102**. In HTML, the start of form **306** is defined with a "begin-form" identifying code, such as follows: "<FORM ACTION="/PY/MAPS.PY?PYT=TMAP&YY=6735"METHOD=GET>".

5 Address field **308** is indicated by textual input code, such as "<INPUT TYPE="TEXT" NAME = ADDR VALUE=""SIZE=35>". CSZ field **310** is defined by another textual input code, such as "<INPUT TYPE= "TEXT" NAME = CSZ VALUE=""SIZE=35>". Form submission icon **312** is displayed by input code that  
10 defines a command for submitting information, such as "<INPUT TYPE=SUBMIT NAME="GET&NBSP;MAP"VALUE="GET MAP">". The end of form **306** is defined with an "end-form" identifying code, such as "</FORM>".

15 As shown in **Figure 3**, the user inputs an address, such as "11400 Burnet Road", in address field **308** and the city, state, and zip code, such as "Austin, Texas 78758", in CSZ field **310**. The user uses a mouse **28** or other pointer control device at client system **102** to control  
20 cursor **314** on screen **300** and activate form submission icon **312**. As shown in **Figure 3**, form submission icon **312** is labeled "Submit Request for Map" button.

25 When form submission icon **312** is activated, web page identifier **316** for web page **304** having at least the address of web page **304**, the user-provided data for fields **308** and **310** and field identifiers **324** and **328** (i.e., "addr" identifier and "csz" identifier) for identifying fields **308** and **310** and associating the provided data to  
30 respective fields **308** and **310**, is shown in web address field **302**. Web page identifier **316** is shown in **Figure 3** as the following string:

"http://maps.searchengine.com/py/maps.py?Pyt=Tmap&addr=11400+Burnet+Road&csz=Austin%2C+Texas+78758&Get%A0M".

5 At the time of submitting form **306** (i.e., when form submission icon **312** is activated), web page identifier **316** includes an address **318** for web page **304** (i.e., "maps.searchengine.com/py/maps.py"), a form tag **320** (i.e., "Pyt"), a form tag definition **322** (i.e., "Tmap"), a first  
10 textual input **324** (i.e., "addr" identifier), a first textual value **326** (i.e., "11400 Burnet Road"), a second textual input **328** (i.e., City, State, and Zip Code ("csz" identifier)), a second textual value **330** (i.e., "Austin, Texas 78758"), and a submitting input **332** (i.e.,  
15 "Get%A0M").

Address **318** identifies the Uniform Resource Locator ("URL") location of web page **304**. The text in web page identifier **316** following address **318** defines form **306** that  
20 has been filled-out by the user. Form tag **320** identifies that the following portion in web page identifier **316** specifies form **306**. Form tag definition **322** indicates that various inputs and definitions for the inputs that follow in web page identifier **316** are being provided for  
25 form **306**. First textual input **324** identifies the input for the first field of the form, which is address field **308**. First textual value **326** contains the textual value for first textual input **324** (i.e., "addr" identifier), which is the actual text inputted by the user in address  
30 field **308** (i.e., "11400 Burnet Road"). Second textual value **328** contains the textual value for second textual input **330** (i.e., "csz" identifier), which is the actual

text inputted by the user in CSZ field **310** (i.e., "Austin, Texas 78758"). Submitting input **332** is defined as a "Get" command (i.e., "Get%A0M") in which client system **102** commands retrieval of appropriate information from server system **110** based on form **306** filled out by the user and submitted to server system **110**. The "Get" command is executed to submit form **306** to server system **110** to search and obtain from the web site that hosts web page **304** the map or driving directions for the address (i.e., street address, city, state, and zip code) provided by the user. In the string, the "?" symbol is used as a parameter indicator for the string while the "&" symbol is used as a field separator to distinguish between separate fields in the string. Also, the "+" symbol is used to denote a space in the string, and the "%2C" symbol is used to represent a comma in the string.

Referring to **Figure 4**, a flow chart of an exemplary method **400** or program product for browser application **104** executed by client system **102** in accordance with the present invention is shown. Method **400** or program product is preferably performed by code for browser application **104**. Method **400** starts at block **402** and moves to block **404**, which shows browser application **104** receiving a request for a web page, such as web page **304** or any other web page, from the user. Method **400** next proceeds to block **406**, which depicts browser application **104** retrieving the requested web page from the host server system. Method **400** then moves from block **406** to decision block **408**, which depicts a determination whether the address of the web page requested by the user, after opening browser application **104** that had been closed, is

the same address of the web page saved in a volatile memory system (DRAM **14**) via a clipboard operation of operating system **106** of client system **102**.

5           If the address of the web page requested by the user  
is not the same as the address of a web page, if any,  
saved in the volatile memory system (DRAM **14**), then method  
**400** moves from decision block **408** directly to decision  
block **418**. On the other hand, if the address of the web  
10       page requested by the user is the same as the address of a  
web page saved in the volatile memory system, then method  
**400** moves from decision block **408** to decision block **410**.  
Decision block **410** shows a determination whether browser  
application **104** automatically uses the form retrievable  
from the information stored in the volatile memory system.

          If at decision block **410**, browser application **104**  
does automatically use the form retrievable from the  
information stored in the volatile memory system, then  
method **400** moves from decision block **410** to block **412**.  
However, if at decision block **410**, browser application **104**  
does not automatically use the retrievable from the  
information stored in the volatile memory system, then  
method **400** moves from decision block **410** to block **414**.  
25       Block **414** depicts browser application **104** querying the  
user as to whether he/she wishes to use the form  
retrievable from the information stored in the volatile  
memory system (e.g., saved onto the "clipboard"). The  
query made at block **414** provides flexibility to the user  
30       as to whether he/she desires to still use the same data  
previously provided for the form. Method **400** then moves  
from block **414** to decision block **416**, which depicts a

determination whether the user wishes to use the form retrievable from the information in the volatile memory system. If at decision block **416**, the user does not wish to use the form retrievable from the information stored in the volatile memory system, then method **400** moves from decision block **416** directly to decision block **418**.

However, if at decision block **416**, the user does wish to use the form retrievable from the information stored in the volatile memory system, then method **400** moves from decision block **416** to block **412**. Block **412** shows browser application **104** parsing the information stored in the volatile memory system and displaying the saved data in the appropriate fields of the form within the retrieved web page. Method **400** then moves from block **412** directly to block **421**.

As an exemplary implementation of blocks **404** to **416**, first assume that web page identifier **316** of web page **304** is stored in the volatile memory system (e.g., saved on the "clipboard") prior to browser application **104** closing, and the user again requests web page **304** when he reopens browser application **104**. Given this assumption, browser application **104** retrieves web page **304** from server system **110** at block **406**. Then at decision block **408**, the address of the web page requested by the user is determined to be the same as address **318** of web page **304** stored in the volatile memory system (i.e., "maps.searchengine.com/py/maps.py"). Method **400** then proceeds from decision block **408** to decision block **410**. If at decision block **410**, browser application **104** does not automatically use the form retrievable from the information stored in the volatile memory system, method

400 moves from decision block 410 to block 414, which shows browser application 104 querying the user as to whether he/she desires to complete the form using information previously provided by the user and saved in the volatile memory system (e.g., saved on the "clipboard"). If at decision block 416, browser application 104 receives an indication from the user that he/she does not desire to use the form retrievable from the information stored in the volatile memory system, then method 400 moves from decision block 416 directly to decision block 418. However, if at decision block 416 browser application 104 receives an indication from the user that he/she does desire to use the form retrievable from the information saved in the volatile memory system, then method 400 moves from decision block 416 to block 412.

Referring back to decision block 418, browser application 104 determines whether the web page requested by the user includes a form. If the requested web page does not contain a form, then method 400 moves directly from decision block 418 to block 426. However, if the requested web page contains a form, then method 400 moves from decision block 418 to block 420, which shows, if required, browser application 104 erasing the information in the volatile memory system. Method 400 next moves from block 420 to block 421, which shows browser application 104 receiving entered or modified data for the form, if any, from the user. Method 400 then proceeds from block 421 to decision block 422. Decision block 422 shows browser application 104 determining whether a submission of a form with any information provided from the user has



been received. If at decision block **422** browser application **104** determines that a form with information provided by the user (i.e., a submittable form) was not received, then method **400** moves directly from decision block **422** to block **426**. On the other hand, if at decision block **422**, browser application **104** determines that a submittable form was received, then method **400** proceeds from decision block **422** to block **424**. Block **424** shows browser application **104** calling a clipboard operation of client operating system **106**. Web page identifier **316** for the requested web page, which includes at least the address (such as address **318**) of the web page, the data provided by the user for the form (i.e., the data for form **306** are first textual value **326** and second textual value **330**), field identifiers (i.e., first textual input **324** and second textual input **328**) for identifying the fields (i.e., address field **308** and CSZ field **310**) and for associating the data provided by the user (i.e., first textual value **326** and second textual value) to the respective fields (i.e., respective address field **308** and CSZ field **310**), are saved into the volatile memory system via the clipboard operation. Method **400** then moves from block **424** to block **426**.

Block **426** shows browser application **104** sending the form with the data provided by the user from client system **102** to server system **110** hosting the web page that has the form. Method **400** proceeds from block **426** to decision block **428**, which shows browser application **104** determining whether transmission of the form with the data provided by the user from client system **102** to server system **110** was successful. If the transmission of the form with the data

was not successful, method **400** returns from decision block **428** to block **404** and continues therefrom. However, if transmission of the form with the data was successful, then method **400** finally ends at block **430**.

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Therefore, if browser application **104** was not successful in submitting form **306** from client system **102** to server system **110** and the user opens browser application **104** that had been closed and again requests retrieval of a web page of which a copy is buffered in the volatile memory system (e.g., saved on the "clipboard"), then method **400** enables the form with the same information previously provided by the user to be restored from the volatile memory system and displayed on the same web page within computer screen **300**. Thus, the user avoids having to re-input the information for form **306**. If browser application determines that the requested form has been successfully submitted to server system **110** and browser application **104** then receives another request for a next web page from the user, all of the data related to the form saved in the volatile memory system may be programmed to be automatically erased by browser application **104**; or alternatively browser application **104** may be programmed to query the user in erasing the data in the volatile memory system. Erasure of the data is particularly useful for security reasons, for the fact that the data is no longer needed, for clean-up purposes of the volatile memory system, or for other such reasons.

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While the invention has been particularly shown and described with reference to a preferred embodiment, it will be understood by those skilled in the art that

various changes in form and detail may be made therein without departing from the spirit and scope of the invention. For example, although aspects of the present invention have been described with respect to a computer system executing software that directs the functions of the present invention, it should be understood that the present invention may alternatively be implemented as a program product for use with a data processing system. Programs defining the functions of the present invention can be delivered to a data processing system via a variety of signal-bearing media, which include, without limitation, non-rewritable storage media (e.g., CD-ROM), rewritable storage media (e.g., a floppy diskette or hard disk drive), and communication media, such as digital and analog networks. It should be understood, therefore, that such signal-bearing media, when carrying or encoding computer readable instructions that direct the functions of the present invention, represent alternative embodiments of the present invention.

**CLAIMS:**

What is claimed is:

1. A method for saving a submitted form of a web page,  
said method comprising:

receiving, from a user by a browser application  
executed in a client system, data for a form in a web  
page; and

prior to submission of the form with the data to a  
server system hosting the web page, saving an address of  
the web page, the data provided from the user for the  
form, and at least one field identifier for associating  
the data to at least one respective field of the form,  
into a volatile memory system of the client system,  
wherein the address, the data, and the at least one field  
identifier are still stored in the volatile memory system  
after the browser application is closed.

1           2.    The method according to Claim 1, further comprising:

2                    in response to the user opening the browser  
3           application that had been closed and again requesting  
4           retrieval of the web page, retrieving the web page from  
5           the server system; and

6                    automatically filling in the form of the web page  
7           with the data stored in the volatile memory system.

1           3.    The method according to Claim 2, wherein  
2           automatically filling in the form of the web page with the  
3           data stored in the volatile memory system further  
4           comprises:

5                    parsing, by the browser application, the data for the  
6           form; and

7                    displaying, by the browser application, the form with  
8           the data.

1           4.    The method according to Claim 1, further comprising:

2                    in response to the user opening the browser  
3           application that had been closed and again requesting  
4           retrieval of the web page, retrieving the web page from  
5           the server system;

6                    automatically filling in the form of the web page  
7           with the data stored in the volatile memory system;

8                    receiving, by the browser application, a request from  
9           the user for retrieval of a web page;

10 comparing an address of the requested web page with  
11 the address stored in the volatile memory system;

12 in response to a match between the address of the  
13 requested web page and the address stored in the volatile  
14 memory system, querying, by the browser application,  
15 whether the user wishes to fill in the form using the data  
16 saved in the volatile memory system; and

17 only in response to the browser application receiving  
18 an indication that the user wishes to fill in the form  
19 with the data saved in the volatile memory system,  
20 implementing, by the browser application, the retrieving  
21 and filling in steps.

1 5. The method according to Claim 4, further comprising:

2 determining whether the requested web page has a  
3 submittable form; and

4 only in response to the requested web page having the  
5 submittable form, implementing, by the browser  
6 application, the receiving and saving steps.  
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1 6. The method according to Claim 1, wherein saving an  
2 address of the web page and the data provided from the  
3 user for the form further comprises:

4 calling a clipboard operation of an operating system  
5 on which the client system operates to save the address,  
6 the data, and the at least one field identifier into the  
7 volatile memory system.

1        7.    The method according to Claim 1, further comprising:

2                in response to the data for the form being

3        successfully submitted to the server system and the

4        browser application receiving another request for a next

5        web page from the user, erasing, if required, the data

6        from the volatile memory system.

1 8. A system for saving a submitted form of a web page,  
2 said system comprising:

3 means for receiving, from a user by a browser  
4 application executed in a client system, data for a form  
5 in a web page; and

6 means for saving an address of the web page, the data  
7 provided from the user for the form, and at least one  
8 field identifier for associating the data to at least one  
9 respective field of the form, into a volatile memory  
10 system of the client system prior to submission of the  
11 form with the data to a server system hosting the web  
12 page, wherein the address, the data, and the at least one  
13 field identifier are still stored in the volatile memory  
14 system after the browser application is closed.



1           9.    The system according to Claim 8, further comprising:

2                means for retrieving the web page from the server  
3           system in response to the user opening the browser  
4           application that had been closed and again requesting  
5           retrieval of the web page; and

6                means for automatically filling in the form of the  
7           web page with the data stored in the volatile memory  
8           system.

1           10.   The system according to Claim 9, wherein said means  
2           for automatically filling in the form of the web page with  
3           the data stored in the volatile memory system further  
4           comprises:

5                means for parsing, by the browser application, the  
6           data for the form; and

7                means for displaying, by the browser application, the  
8           form with the data.

1           11.   The system according to Claim 8, further comprising:

2                means for retrieving the web page from the server  
3           system in response to the user opening the browser  
4           application that had been closed and again requesting  
5           retrieval of the web page;

6                means for automatically filling in the form of the  
7           web page with the data stored in the volatile memory  
8           system;

9 means for receiving, by the browser application, a  
10 request from the user for retrieval of a web page;

11 means for comparing an address of the requested web  
12 page with the address stored in the volatile memory  
13 system;

14 means for querying, by the browser application,  
15 whether the user wishes to fill in the form using the data  
16 saved in the volatile memory system in response to a match  
17 between the address of the requested web page and the  
18 address stored in the volatile memory system; and

19 means for implementing, by the browser application,  
20 the retrieving and filling in steps only in response to  
21 the browser application receiving an indication that the  
22 user wishes to fill in the form with the data saved in the  
23 volatile memory system.

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4 means for calling a clipboard operation of an  
5 operating system on which the client system operates to  
6 save the address, the data, and the at least one field  
7 identifier into the volatile memory system.

1 14. The system according to Claim 8, further comprising:

2 means for erasing, if required, the data from the  
3 volatile memory system in response to the data for the  
4 form being successfully submitted to the server system and  
5 the browser application receiving another request for a  
6 next web page from the user.

1 15. A program product for saving a submitted form of a  
2 web page, said program product comprising:

3 instruction means for receiving, from a user by a  
4 browser application executed in a client system, data for  
5 a form in a web page;

6 instruction means for saving an address of the web  
7 page, the data provided from the user for the form, and at  
8 least one field identifier for associating the data to at  
9 least one respective field of the form, into a volatile  
10 memory system of the client system prior to submission of  
11 the form with the data to a server system hosting the web  
12 page, wherein the address, the data, and the at least one  
13 field identifier are still stored in the volatile memory  
14 system after the browser application is closed; and

15 computer usable media bearing said control program.

1 16. The program product according to Claim 15, further  
2 comprising:

3 instruction means for retrieving the web page from  
4 the server system in response to the user opening the  
5 browser application that had been closed and again  
6 requesting retrieval of the web page; and

7 instruction means for automatically filling in the  
8 form of the web page with the data stored in the volatile  
9 memory system.

1 17. The program product according to Claim 16, wherein  
2 said instruction means for automatically filling in the

3 form of the web page with the data stored in the volatile  
4 memory system further comprises:

5 instruction means for parsing, by the browser  
6 application, the data for the form; and

7 instruction means for displaying, by the browser  
8 application, the form with the data.

1 18. The program product according to Claim 15, further  
2 comprising:

3 instruction means for retrieving the web page from  
4 the server system in response to the user opening the  
5 browser application that had been closed and again  
6 requesting retrieval of the web page;

7 instruction means for automatically filling in the  
8 form of the web page with the data stored in the volatile  
9 memory system;

10 instruction means for receiving, by the browser  
11 application, a request from the user for retrieval of a  
12 web page;

13 instruction means for comparing an address of the  
14 requested web page with the address stored in the volatile  
15 memory system;

16 instruction means for querying, by the browser  
17 application, whether the user wishes to fill in the form  
18 using the data saved in the volatile memory system in  
19 response to a match between the address of the requested

20 web page and the address stored in the volatile memory  
21 system; and

22 instruction means for implementing, by the browser  
23 application, the retrieving and filling in steps only in  
24 response to the browser application receiving an  
25 indication that the user wishes to fill in the form with  
26 the data saved in the volatile memory system.

1 19. The program product according to Claim 18, further  
2 comprising:

3 instruction means for determining whether the  
4 requested web page has a submittable form; and

5  
6 instruction means for implementing, by the browser  
7 application, the receiving and saving steps only in  
8 response to the requested web page having the submittable  
9 form.

1 20. The program product according to Claim 15, wherein  
2 said instruction means for saving an address of the web  
3 page and the data provided from the user for the form  
4 further comprises:

5 instruction means for calling a clipboard operation  
6 of an operating system on which the client system operates  
7 to save the address, the data, and the at least one field  
8 identifier into the volatile memory system.

1 21. The program product according to Claim 15, further  
2 comprising:

3 instruction means for erasing, if required, the data  
4 from the volatile memory system in response to the data  
5 for the form being successfully submitted to the server  
6 system and the browser application receiving another  
7 request for a next web page from the user.

**ABSTRACT OF THE DISCLOSURE**  
**SYSTEM, METHOD, AND PROGRAM PRODUCT FOR SAVING A SUBMITTED**  
**FORM OF A WEB PAGE**

5           A system, method, and program product of the  
invention enables saving a submitted form of a web page.  
The browser application according to the present invention  
is executed in a client system and receives from a user  
data for a form in a web page. If the user activates a  
10       submission of the form with the data to a server system  
hosting the web page, an address of the web page, the data  
provided from the user for the form, and at least one  
field identifier for associating the data to at least one  
respective field of the form, are saved into a volatile  
15       memory system of the client system. The address, the  
data, and the at least one field identifier are still  
stored in the volatile memory system after the browser  
application is closed. When the user opens the browser  
application that had been closed and again requests  
20       retrieval of the web page, the browser application  
retrieves from the server system the web page that is at  
the address stored in the volatile memory system. The  
browser application restores the form of the web page with  
the data stored in the volatile memory system. The  
25       browser application calls a clipboard operation of an  
operating system on which the client system operates to  
save the address of the web page, the data for the form,  
and the one or more field identifiers, into the volatile  
memory system. If the data for the form is successfully  
30       submitted to the server system and the browser application  
receives another request for a next web page from the  
user, the browser application erases, if required, the  
data from the volatile memory system.



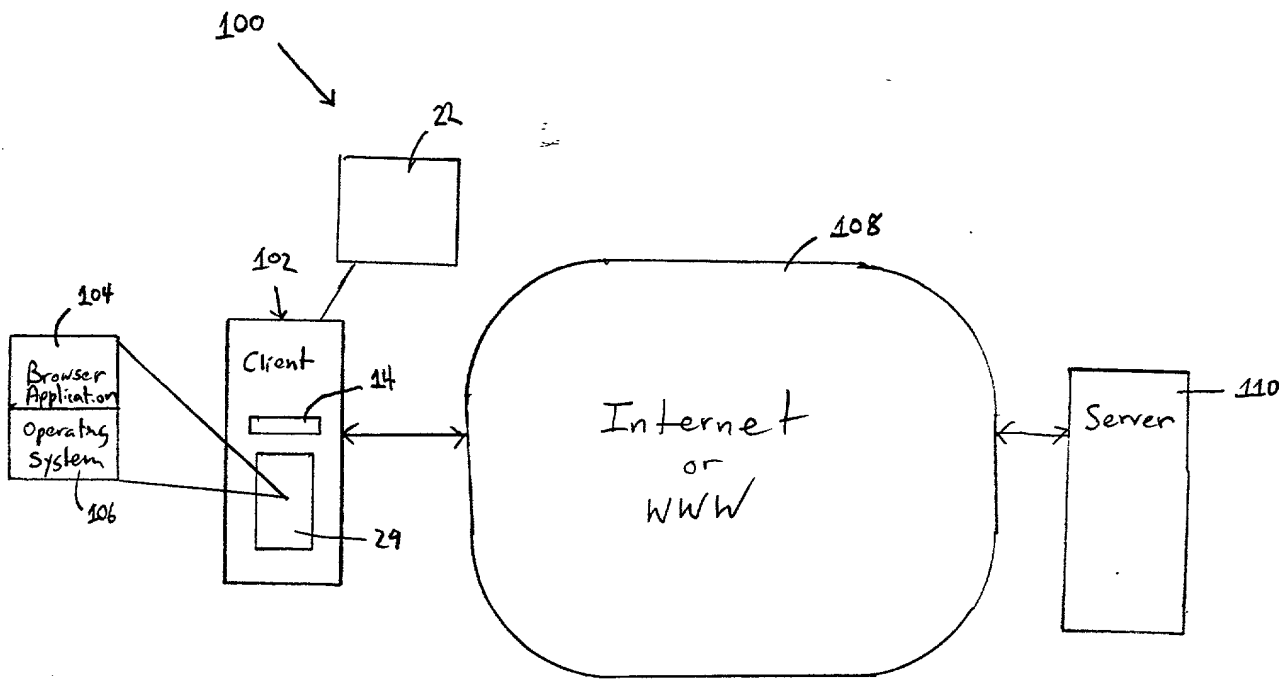
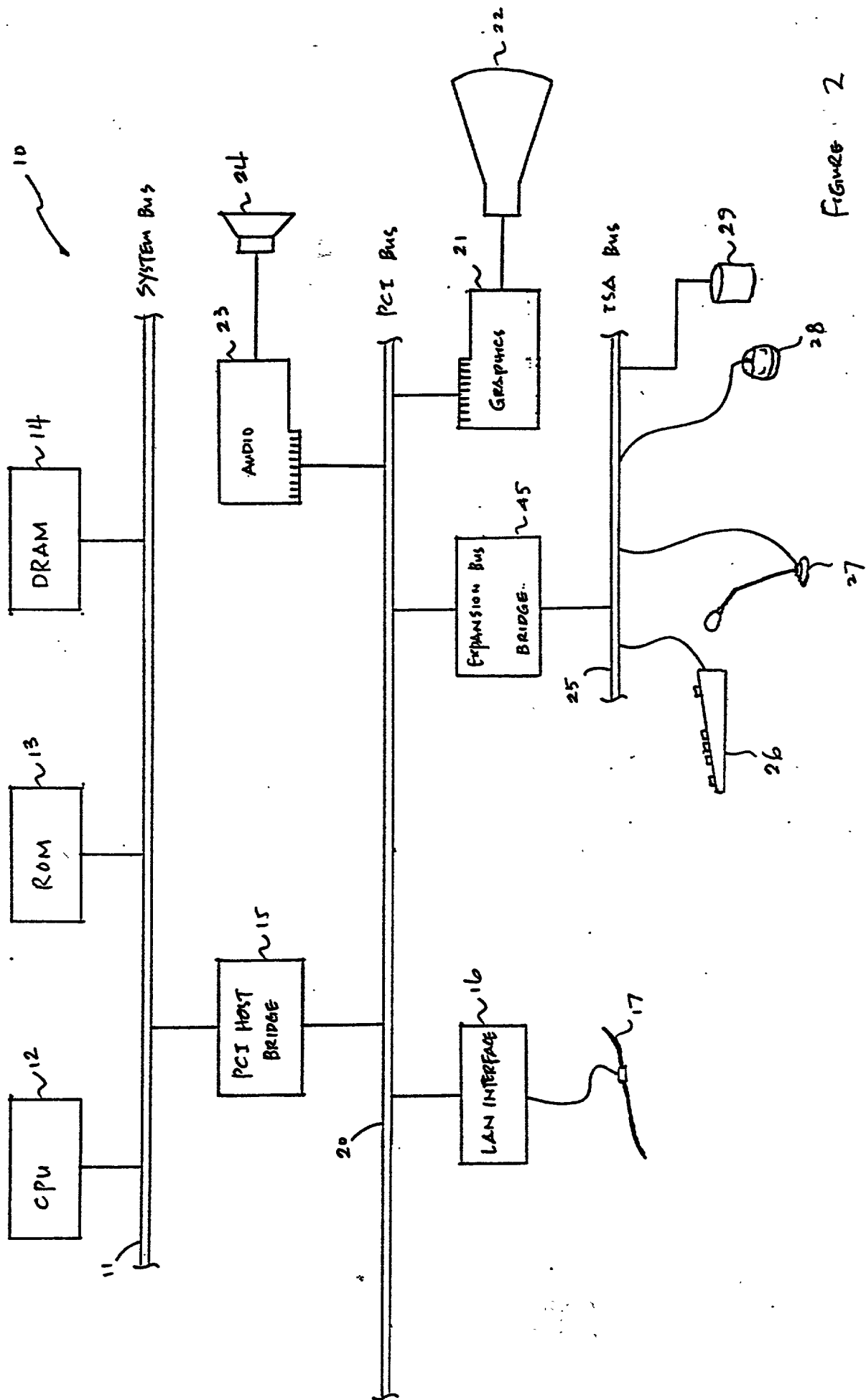


Figure 1



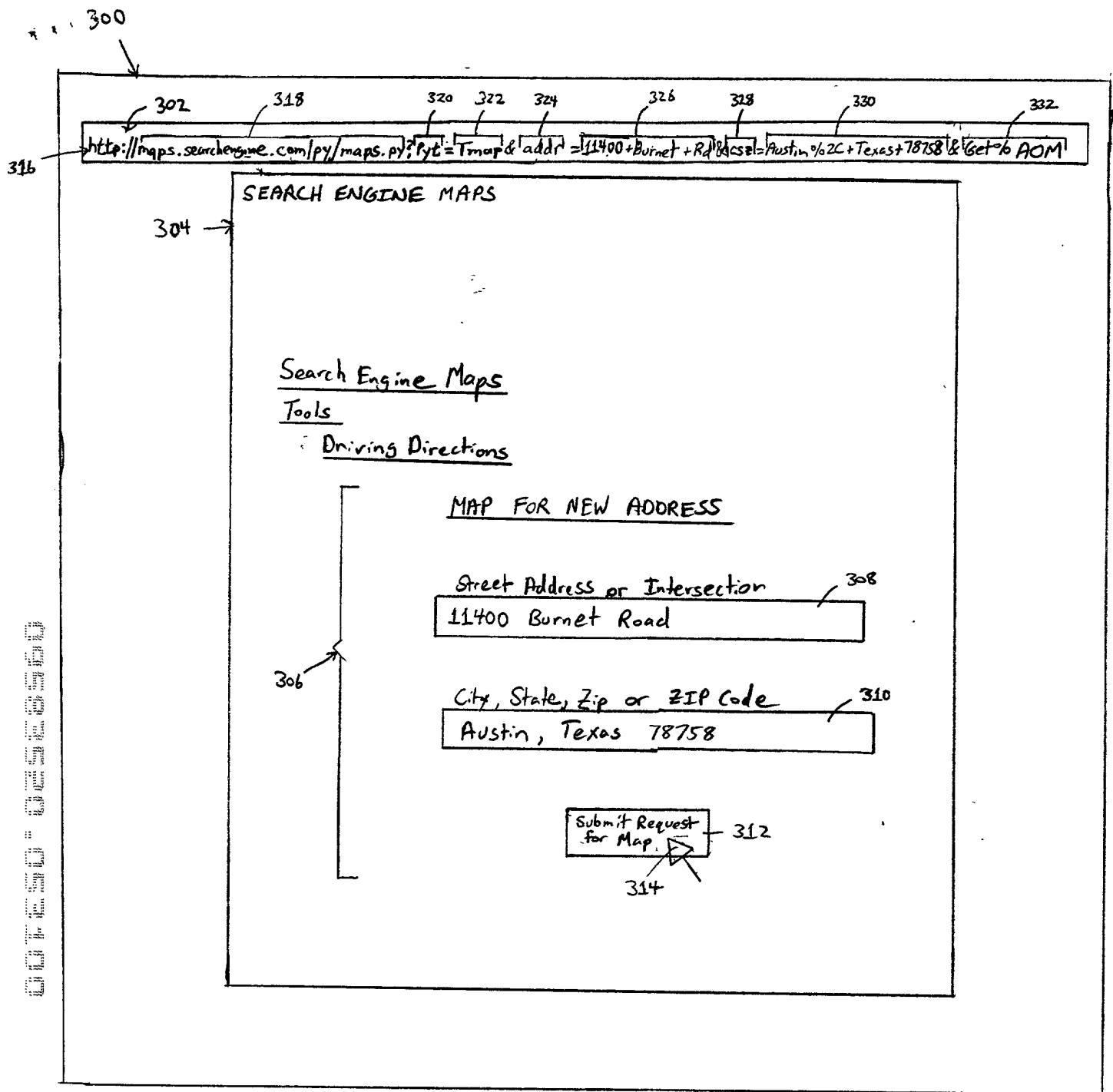


Figure 3

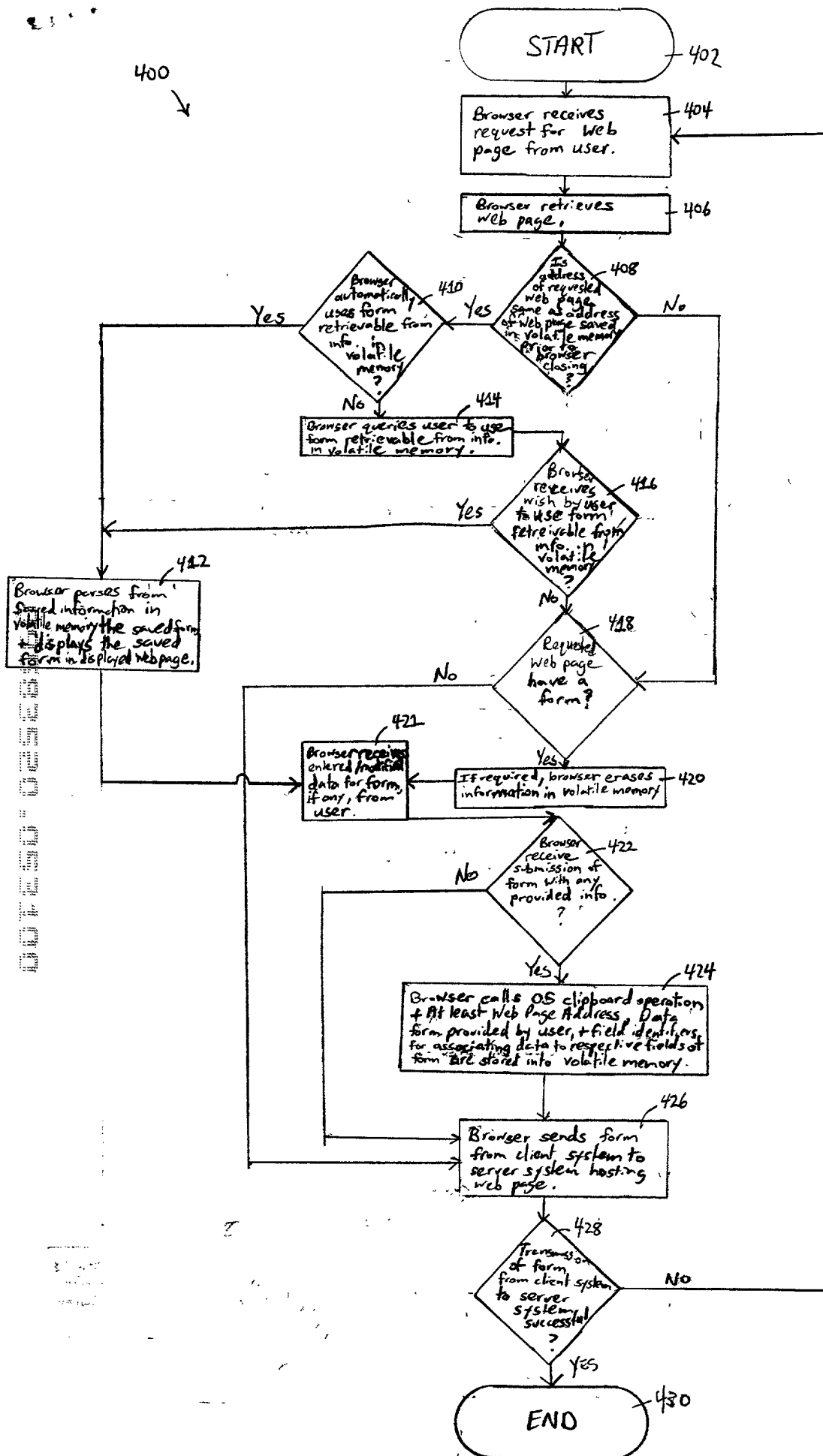


Figure 4

**DECLARATION AND POWER OF ATTORNEY FOR  
PATENT APPLICATION**

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

SYSTEM, METHOD, AND PROGRAM PRODUCT FOR SAVING A SUBMITTED FORM OF A WEB PAGE

the specification of which (check one)

X is attached hereto.

\_\_\_ was filed on \_\_\_\_\_  
as Application Serial No. \_\_\_\_\_  
and was amended on \_\_\_\_\_  
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s):

Priority Claimed

\_\_\_\_\_  
(Number)                      (Country)                      (Day/Month/Year)                      \_\_\_ Yes \_\_\_ No

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information material to the patentability of this application as defined in Title 37, Code of Federal Regulations, §1.56 which occurred between the filing date of the prior

DOCKET NUMBER: AUS000070US1

application and the national or PCT international filing date of this application:

(Application Serial #)

(Filing Date)

(Status)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorneys and/or agents to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

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INVENTORS SIGNATURE: Jerry Walter Malcolm DATE: 5/30/2000

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